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NOTICE OF ALLOWANCE AND FEE(S) DUE

34872 7590 09/19/2008

Basell USA Inc.
Delaware Corporate Center II
2 Righter Parkway, Suite #300
Wilmington, DE 19803

EXAMINER

CHOI, LING SIU

ART UNIT

PAPER NUMBER

1796

DATE MAILED: 09/19/2008

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
|-----------------|-------------|----------------------|---------------------|------------------|

10/550,986

09/26/2005

Giampiero Morini

FE 6094 (US)

4669

TITLE OF INVENTION: MAGNESIUM DICHLORIDE-ALCOHOL ADDUCTS AND CATALYST COMPONENTS OBTAINED THEREFROM

| APPLN. TYPE | SMALL ENTITY | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|----------------|--------------|---------------|---------------------|----------------------|------------------|------------|
| nonprovisional | NO | \$1440 | \$300 | \$0 | \$1740 | 12/19/2008 |

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.

THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.

HOW TO REPLY TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status above is to be removed, check box 5b on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above, or

If the SMALL ENTITY is shown as NO:

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B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check box 5a on Part B - Fee(s) Transmittal and pay the PUBLICATION FEE (if required) and 1/2 the ISSUE FEE shown above.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

PART B - FEE(S) TRANSMITTAL

**Complete and send this form, together with applicable fee(s), to: Mail Mail Stop ISSUE FEE
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INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence including the Patent, advance orders and notification of maintenance fees will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications.

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

34872 7590 09/19/2008

Basell USA Inc.
Delaware Corporate Center II
2 Righter Parkway, Suite #300
Wilmington, DE 19803

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I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO (571) 273-2885, on the date indicated below.

| |
|--------------------|
| (Depositor's name) |
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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10/550,986 09/26/2005 Giampiero Morini FE 6094 (US) 4669

TITLE OF INVENTION: MAGNESIUM DICHLORIDE-ALCOHOL ADDUCTS AND CATALYST COMPONENTS OBTAINED THEREFROM

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nonprovisional NO \$1440 \$300 \$0 \$1740 12/19/2008

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|----------|----------|----------------|
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CHOI, LING SIU 1796 526-124200

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.

☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list

(1) the names of up to 3 registered patent attorneys or agents OR, alternatively, 1 _____

(2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed. 2 _____

3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document has been filed for recordation as set forth in 37 CFR 3.11. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ☐ Individual ☐ Corporation or other private group entity ☐ Government

4a. The following fee(s) are submitted:

- ☐ Issue Fee
☐ Publication Fee (No small entity discount permitted)
☐ Advance Order - # of Copies _____

4b. Payment of Fee(s); (Please first reapply any previously paid issue fee shown above)

- ☐ A check is enclosed.
☐ Payment by credit card. Form PTO-2038 is attached.
☐ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment, to Deposit Account Number _____ (enclose an extra copy of this form).

5. **Change in Entity Status** (from status indicated above)

- ☐ a. Applicant claims SMALL ENTITY status. See 37 CFR 1.27. ☐ b. Applicant is no longer claiming SMALL ENTITY status. See 37 CFR 1.27(g)(2).

NOTE: The Issue Fee and Publication Fee (if required) will not be accepted from anyone other than the applicant; a registered attorney or agent; or the assignee or other party in interest as shown by the records of the United States Patent and Trademark Office.

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Date _____

Typed or printed name _____

Registration No. _____

This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450.**

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| 10/550,986 | 09/26/2005 | Giampiero Morini | FE 6094 (US) | 4669 |
| 34872 | 7590 | 09/19/2008 | EXAMINER | |
| Basell USA Inc. Delaware Corporate Center II 2 Righter Parkway, Suite #300 Wilmington, DE 19803 | | | CHOI, LING SIU | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 1796 | |
| DATE MAILED: 09/19/2008 | | | | |

Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 162 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 162 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.

| | | | |
|-------------------------------|------------------------|---------------------|--|
| Notice of Allowability | Application No. | Applicant(s) | |
| | 10/550,986 | MORINI ET AL. | |
| | Examiner | Art Unit | |
| | Ling-Siu Choi | 1796 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 07/18/2008.
2. ☒ The allowed claim(s) is/are 1-3,5-9,11-24 and 26-65.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- * Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- | | |
|--|--|
| <p>1. <input type="checkbox"/> Notice of References Cited (PTO-892)</p> <p>2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)</p> <p>3. <input type="checkbox"/> Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____</p> <p>4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit of Biological Material</p> | <p>5. <input type="checkbox"/> Notice of Informal Patent Application</p> <p>6. <input type="checkbox"/> Interview Summary (PTO-413), Paper No./Mail Date _____.</p> <p>7. <input checked="" type="checkbox"/> Examiner's Amendment/Comment</p> <p>8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance</p> <p>9. <input type="checkbox"/> Other _____.</p> |
|--|--|

DETAILED ACTION

1. This Office Action is in response to the Amendment after Non-final rejection filed 07/18/2008. Claims 4 and 10 were canceled and claims 24-65 have been added. Claims 1-3, 5-9, and 11-65 are now pending.

Examiner's Amendment

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Jarrod N. Raphael on September 5, 2008.

3. The application has been amended as follows:
Cancel claim 25 without prejudice.

Allowable Subject Matter

4. Claims 1-3, 5-9, 11-24, and 26-65 are allowed.

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5. The following is an examiner's statement of reasons for allowance:

The present claims are allowable over the closest references: Invernizzi et al. (US 4,506,027 = EP 0 123 767 A), Sacchetti et al. (US 5,221,651 = EP 0 395 083 A), and Tanaglia et al. (US 5,374,695 = EP 0 544 340 A).

Summary of claim 1:

| | |
|--|--|
| An adduct comprising $\text{MgCl}_2 \cdot (\text{EtOH})_m(\text{ROH})_n(\text{H}_2\text{O})_p$ | |
| R | a C ₁₋₁₅ hydrocarbon group excluding ethyl, optionally substituted with at least one group comprising a heteroatom; |
| n, m | indexes > 0 $(n+m) \geq 0.7$ and $n/(n+m) = 0.1$ to 0.4 |
| p | a number ranging from 0 to 0.7 |
| with the proviso that when <u>R is methyl and (n+m) is in the range of 0.7 to 1</u> , the value of $n/(n+m) = 0.05$ to 0.45 | |

Summary of claim 24:

| | |
|--|--|
| An adduct comprising $\text{MgCl}_2 \cdot (\text{EtOH})_m(\text{ROH})_n(\text{H}_2\text{O})_p$ | |
| R | a C ₁₋₁₅ hydrocarbon group excluding ethyl, optionally substituted with at least one group comprising a heteroatom; |
| n, m | indexes > 0 $(n+m) = 2 - 5$ and $0.05 \leq n/(n+m) \leq 0.95$ |
| p | a number ranging from 0 to 0.7 |
| with the proviso that when <u>R is methyl and (n+m) is in the range of 0.7 to 1</u> , the value of $n/(n+m) = 0.05$ to 0.45 | |

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Summary of claim 45:

| | |
|---|--|
| An adduct comprising $\text{MgCl}_2 \cdot (\text{EtOH})_m (\text{ROH})_n (\text{H}_2\text{O})_p$ | |
| R | a C ₁₋₁₅ hydrocarbon group excluding ethyl, optionally substituted with at least one group comprising a heteroatom; |
| n, m | indexes > 0 $(n+m) \geq 0.7$ and $0.05 \leq n/(n+m) \leq 0.95$ |
| p | a number ranging from <u>0.01 to 0.6</u> |
| with the proviso that when R is methyl and (n+m) is in the range of 0.7 to 1, the value of $n/(n+m) = 0.05$ to 0.45 | |

Invernizzi et al. disclose a supported Ziegler catalyst for olefin polymerization, obtained by reacting an organometallic compound of aluminum and an activated solid support in an inert solvent, followed by reacting with a titanium halide and a vanadium halide in the presence of an inert diluent, wherein the activated solid support is prepared by spray-drying of a solution of magnesium chloride in a mixture of ethanol and methanol in a weight ratio of ethanol to methanol from 0.5:1 to 2.5: 1 (claim 1). Invernizzi et al. further disclose the cocatalyst is alkyl aluminium or alkyl aluminium halide (claim 2). Attention is drawn to Table 1, wherein %EtOH = wt% of ethanol in the support and R₃ = ethanol/methanol weight ratio in the support. Accordingly, the calculated (n + m) and [n /(n +m)] are summarized as follows when R = Me:

| Example | %EtOH | %MeOH | m (EtOH) | n (MeOH) | n+m | n / (n+m) |
|---------|-------|-----------|----------|----------|--------------|------------------|
| | | Me | | | 0.7-1 | 0.05-0.45 |
| 1 | 14.2 | 7 | 0.37 | 0.27 | 0.64 | 0.42 |
| 4 | 14 | 2.3 | 0.34 | 0.08 | 0.42 | 0.19 |

| | | | | | | |
|----|-----|----|------|------|-------------|-------------|
| 8 | 18 | 12 | 0.54 | 0.51 | 1.05 | <u>0.49</u> |
| 9 | 7.5 | 15 | 0.20 | 0.58 | 0.78 | <u>0.74</u> |
| 10 | 7.5 | 15 | 0.20 | 0.58 | 0.78 | <u>0.74</u> |
| 11 | 16 | 4 | 0.42 | 0.16 | 0.58 | 0.28 |
| 14 | 8 | 6 | 0.19 | 0.21 | 0.40 | 0.53 |
| 15 | 7.5 | 15 | 0.20 | 0.58 | 0.78 | <u>0.74</u> |

Thus, Invernizzi et al. do not teach or fairly suggest the claimed adduct comprising the specific $\text{MgCl}_2 \bullet (\text{EtOH})_m(\text{ROH})_n(\text{H}_2\text{O})_p$.

Sacchetti et al. disclose a MgCl_2/ROH adduct, wherein R is an alkyl, cycloalkyl or alkylaryl radical with 1-12 carbon atoms and 0.2-2 moles of alcohol per mole of MgCl_2 (claim 1). However, Sacchetti et al. do not teach or fairly suggest the claimed adduct comprising the specific $\text{MgCl}_2 \bullet (\text{EtOH})_m(\text{ROH})_n(\text{H}_2\text{O})_p$.

Tanaglia et al. disclose a solid support and granular MgCl_2 , obtained (A) by spray drying a solution of MgCl_2 in a liquid hydrocarbon solvent and an aliphatic alcohol $\text{R}'\text{-OH}$, wherein R' is an alkyl radical, linear or branched, containing from 1 to 5 carbon atoms; (B) adding a titanium tetra-alkoxide $\text{Ti}(\text{OR})_4$, wherein R is an alkyl radical, linear or branched, containing from 1 to 8 carbon atoms, to the suspension thus obtained, with a molar ratio $\text{R}'\text{-OH}/\text{MgCl}_2$ of 0.5:1 to 1.5:1 and with a molar ratio $\text{MgCl}_2 / \text{Ti}(\text{OR})_4$ of 0.3:1 to 3:1; (C) heating the suspension until a homogeneous solution is obtained; and (D) cooling the solution to precipitate a granular solid (col. 2, lines 14-39). However, Tanaglia et al. do not teach or fairly suggest the claimed adduct comprising the specific $\text{MgCl}_2 \bullet (\text{EtOH})_m(\text{ROH})_n(\text{H}_2\text{O})_p$.

In light of the above discussion, it is evident as to why the present claims are

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patentable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on 571-272-1114.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

September 26, 2008

Application/Control Number: 10/550,986
Art Unit: 1796

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